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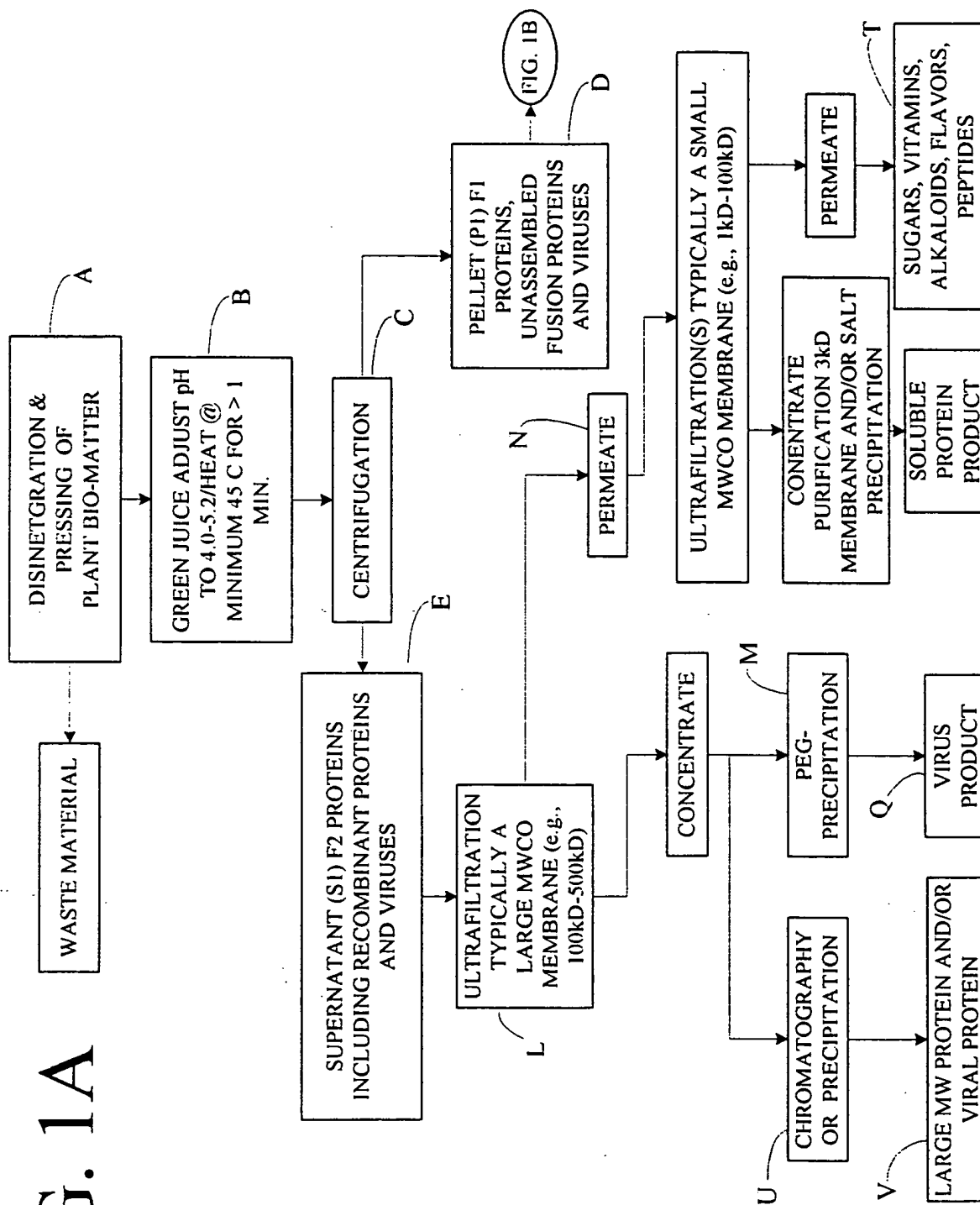
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# FIG. 1A



# FIG. 1B

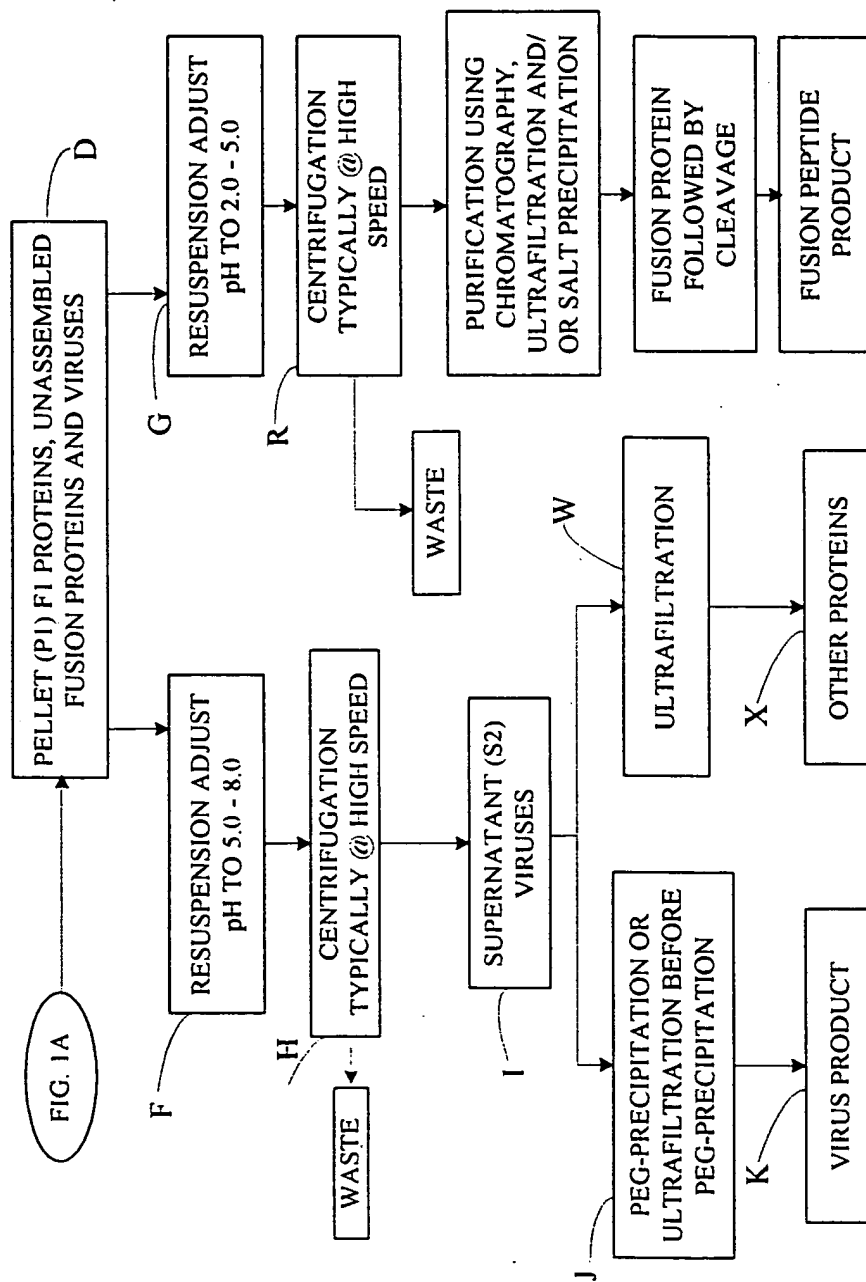


FIG. 2

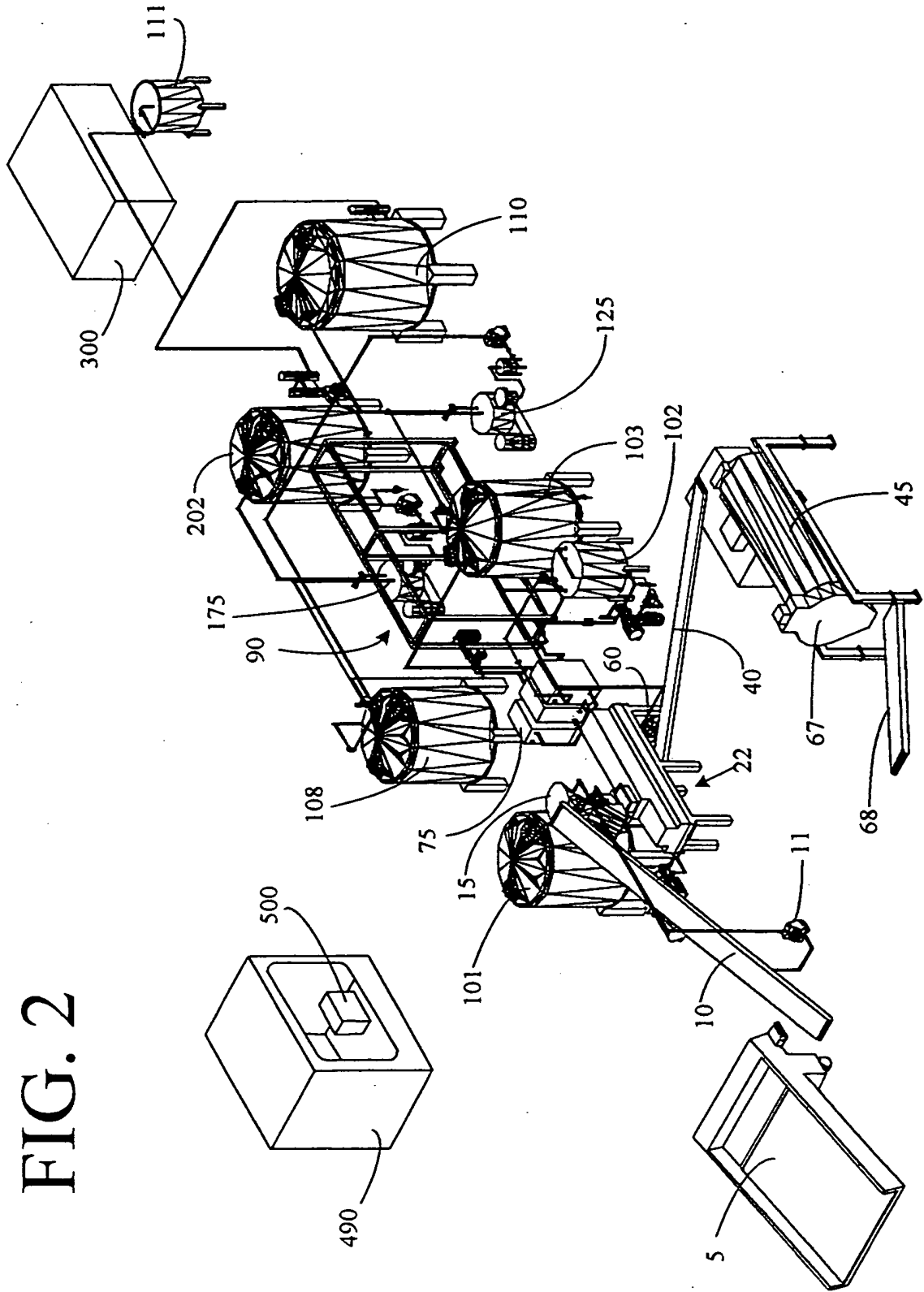


FIG. 3

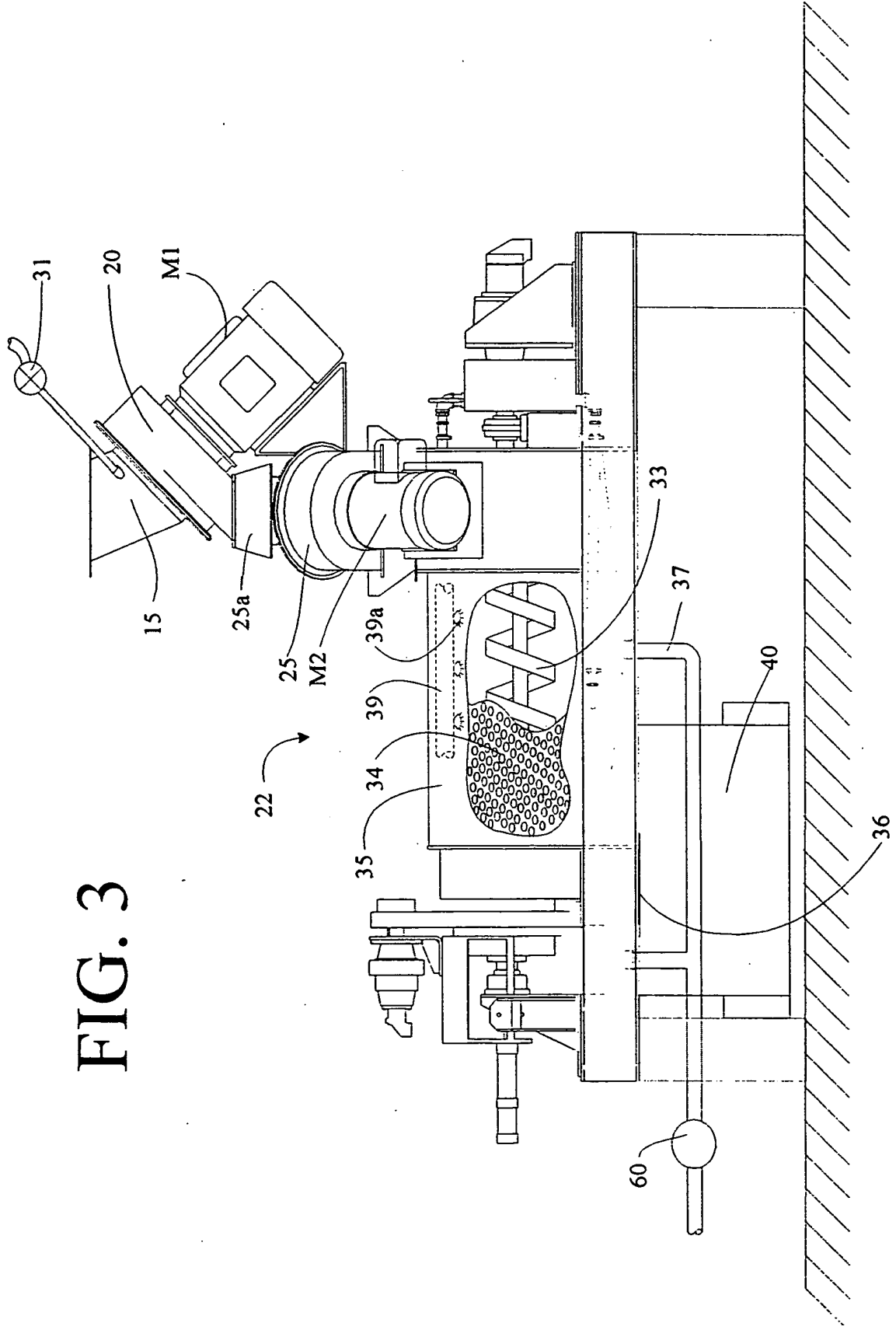


FIG. 4

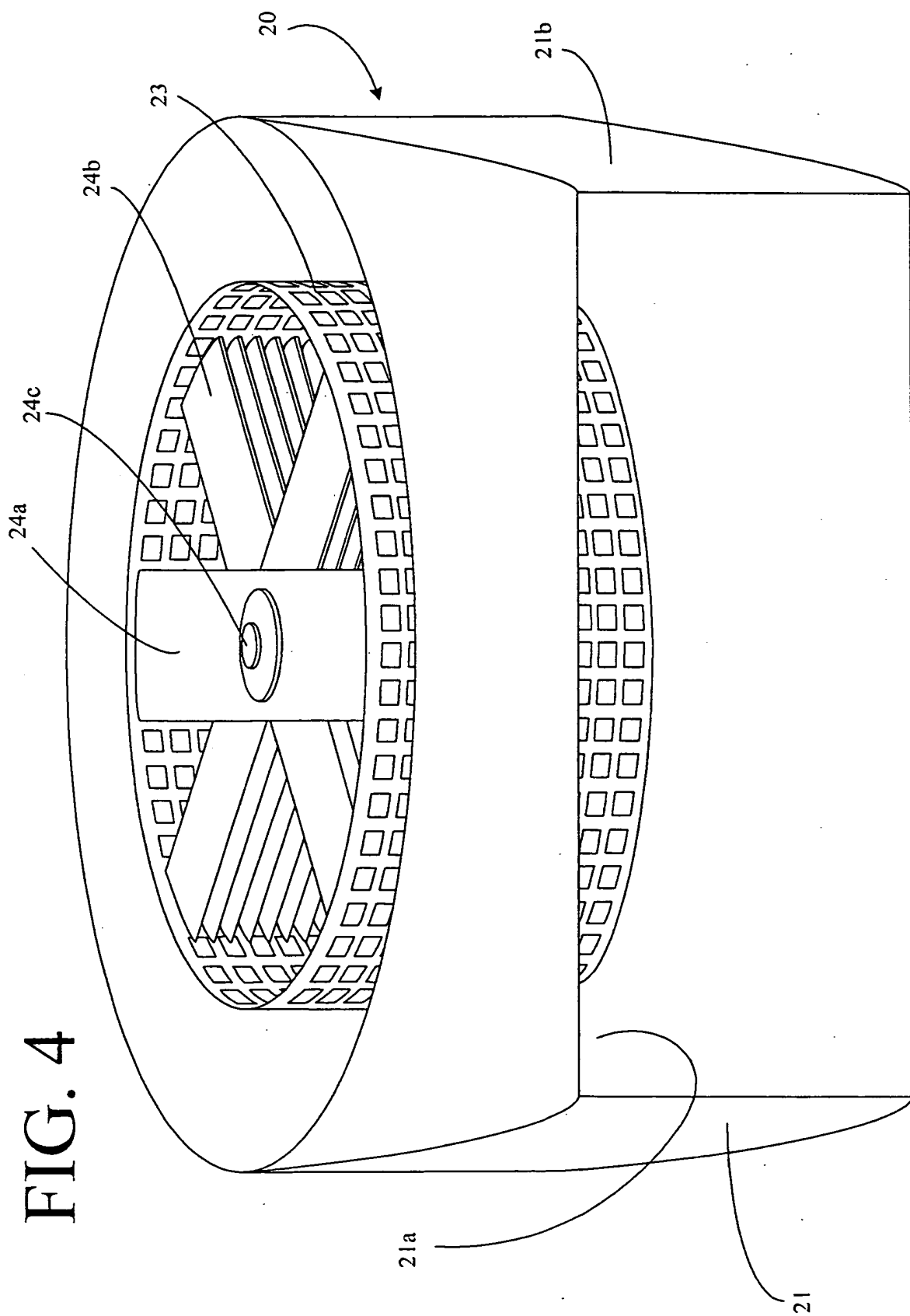


FIG. 5

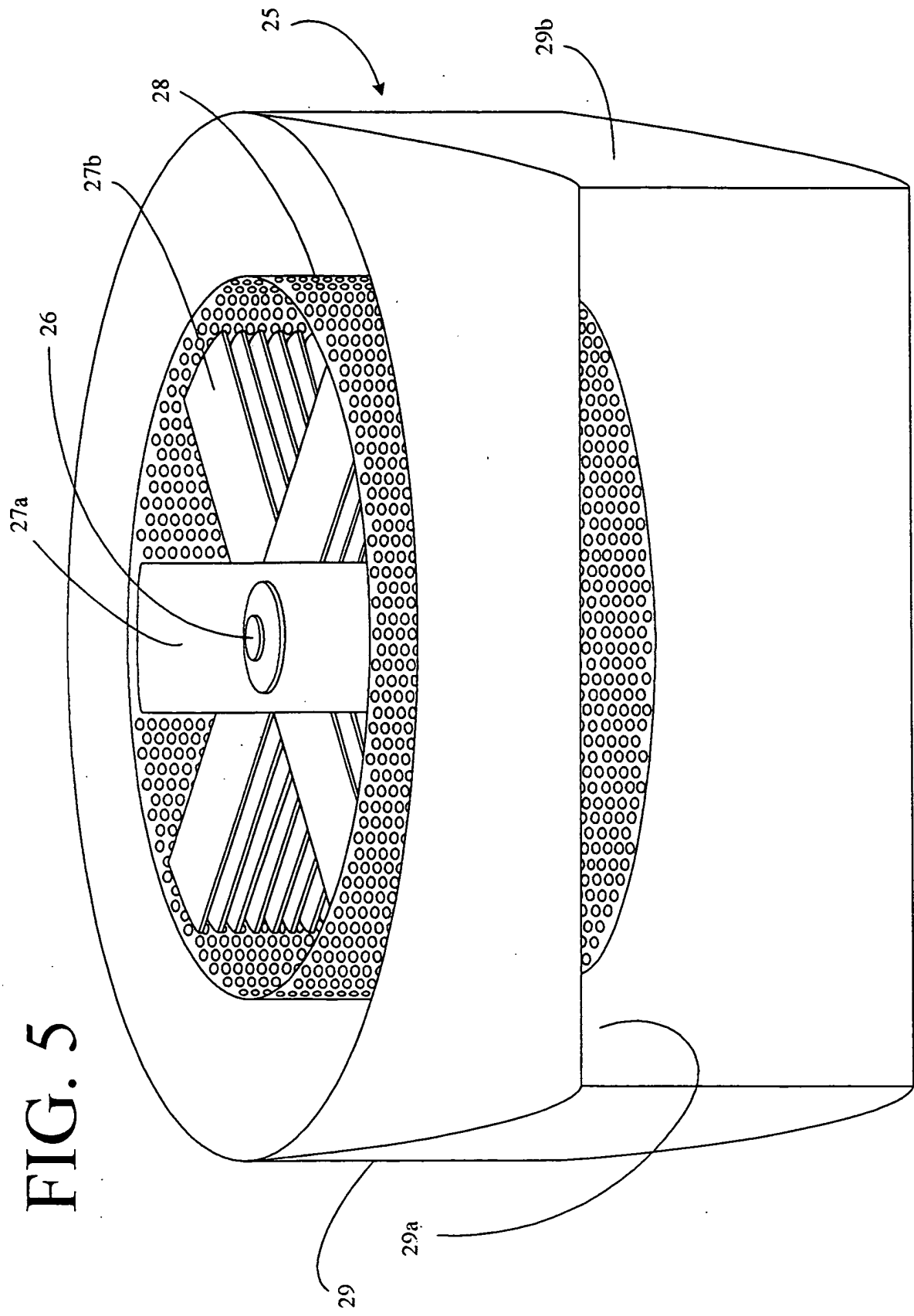


FIG. 6

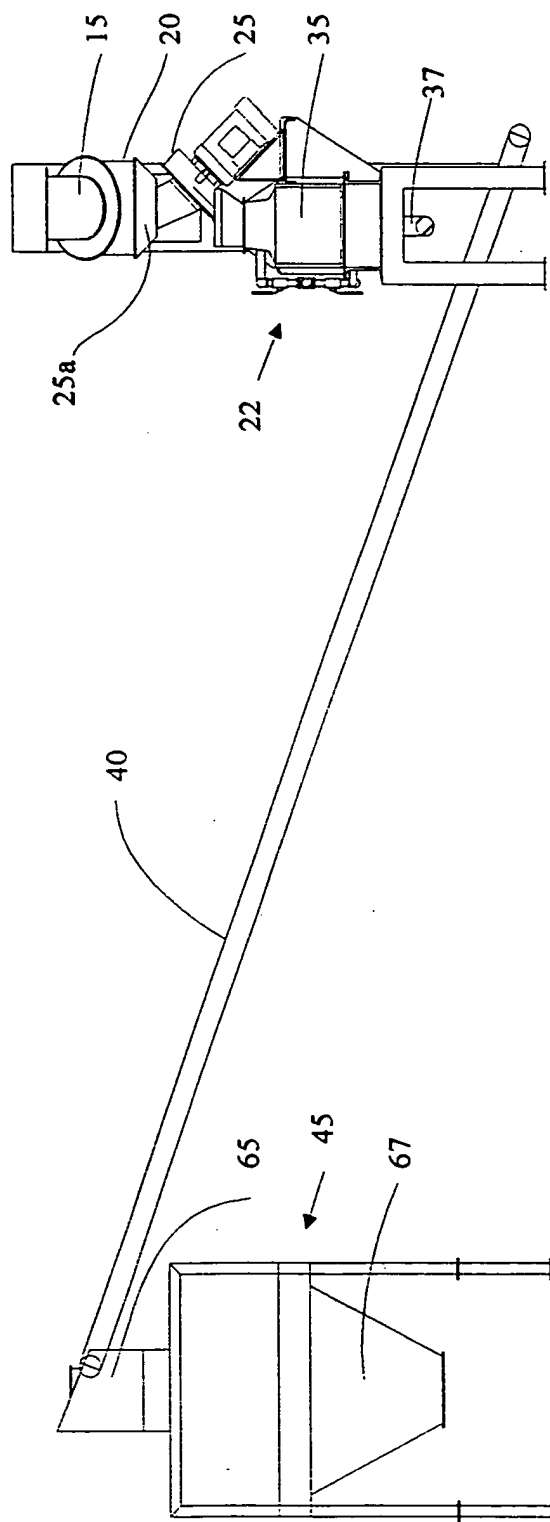




FIG. 7

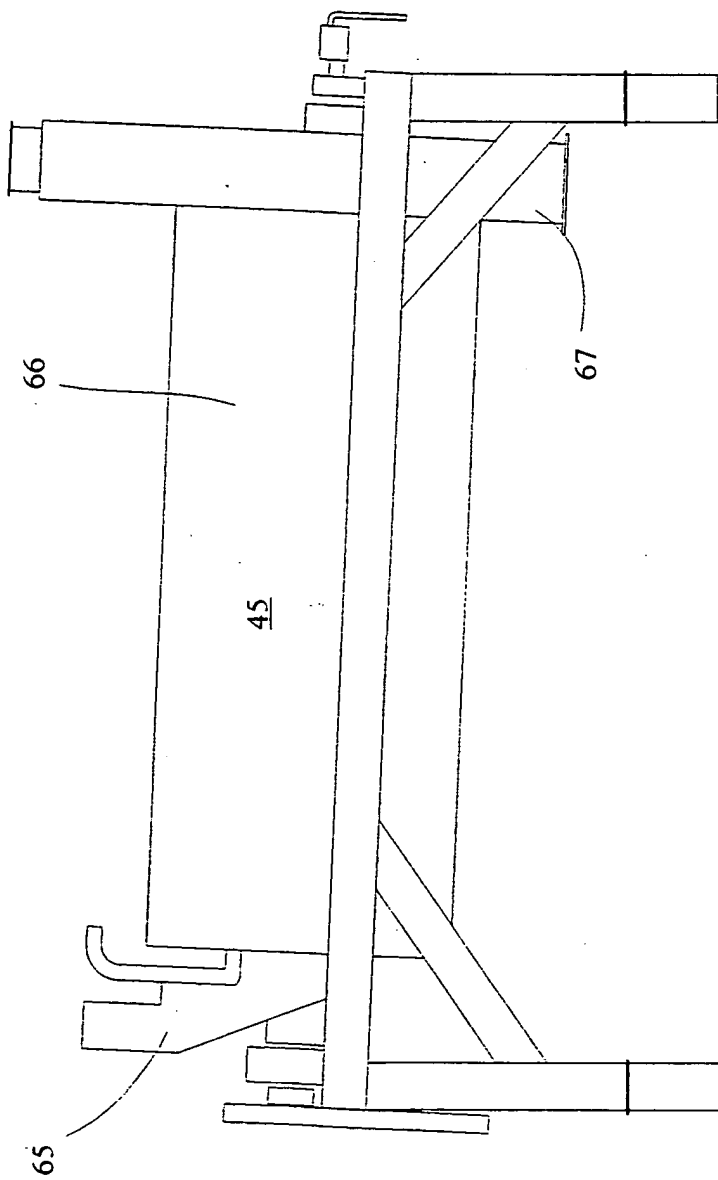
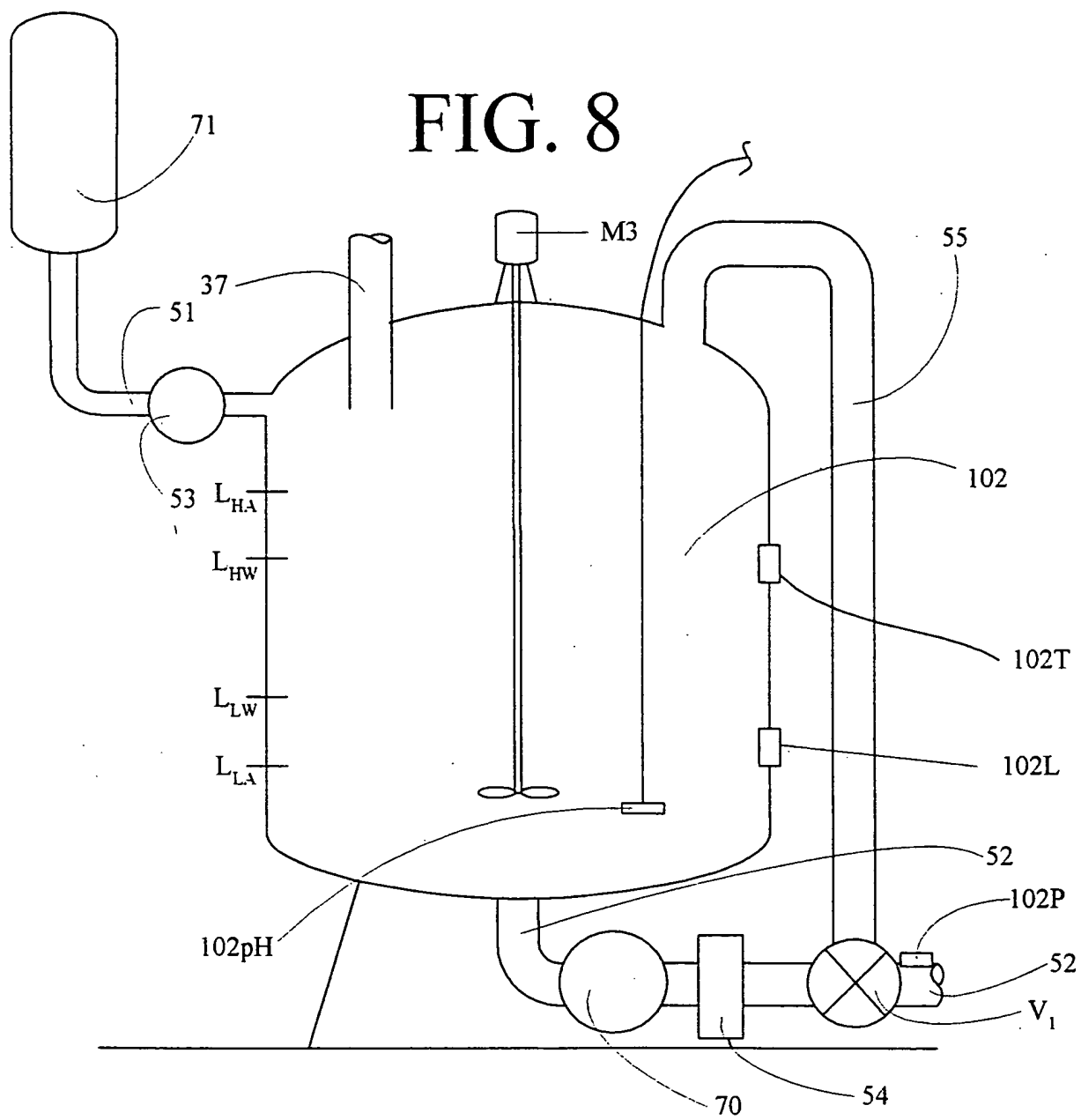


FIG. 8



**FIG. 9**

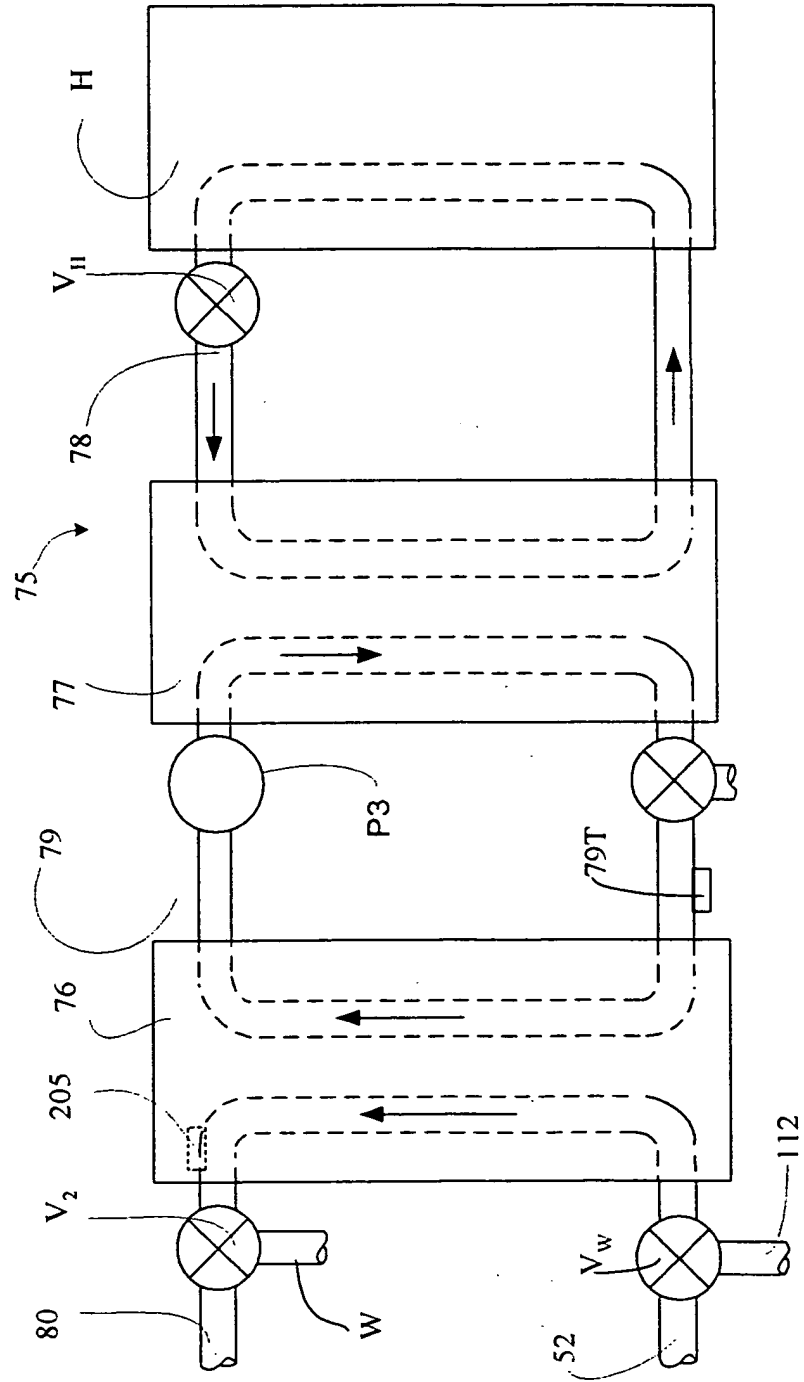


FIG. 10

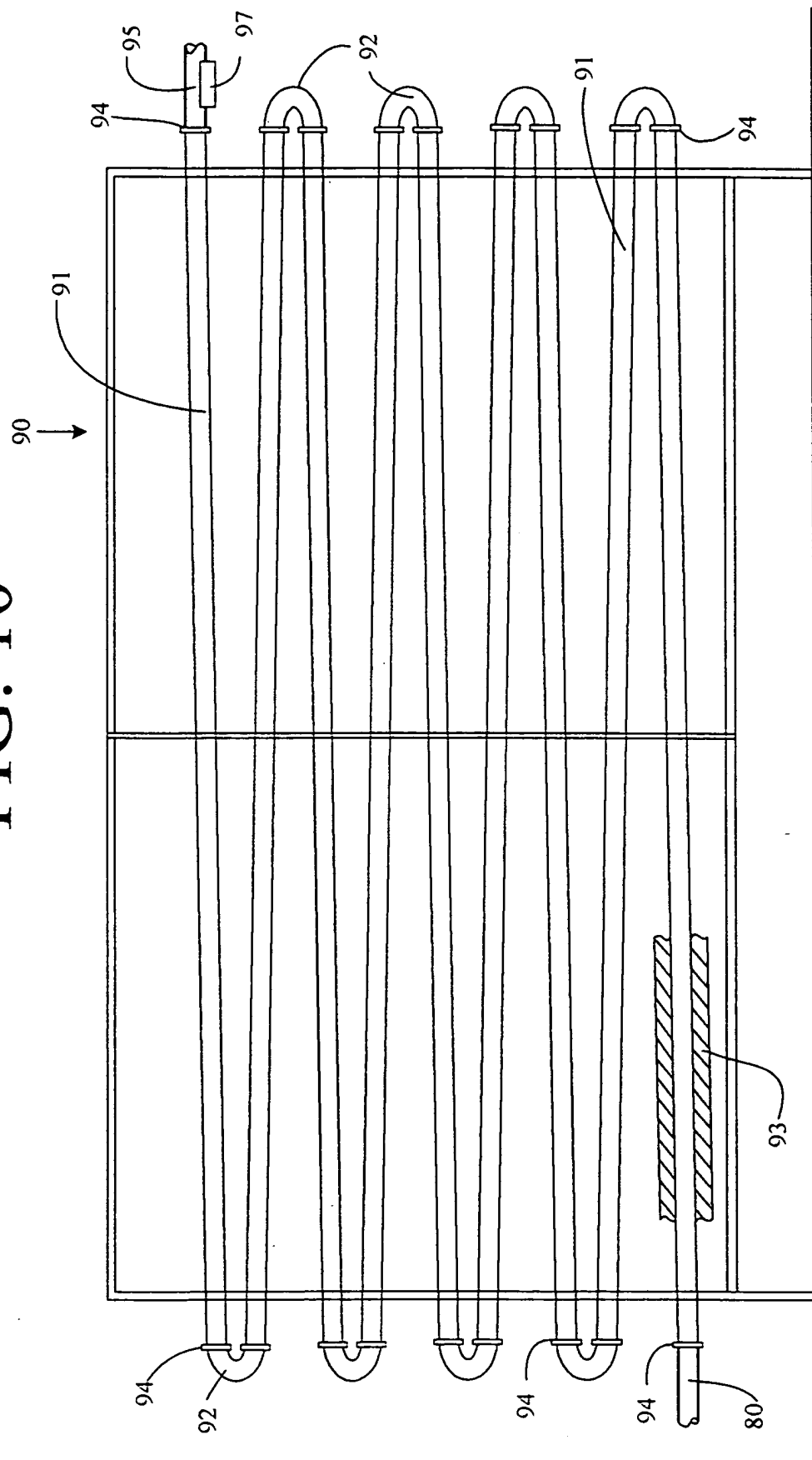


FIG. 11

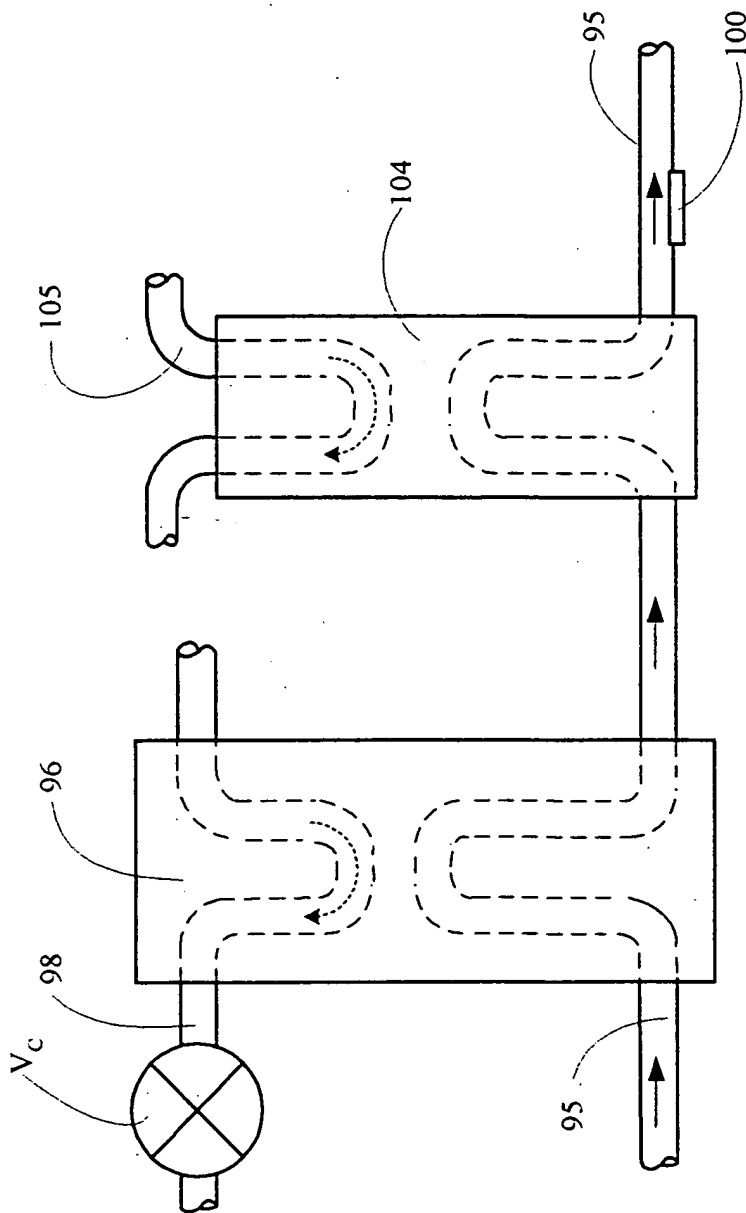


FIG. 12

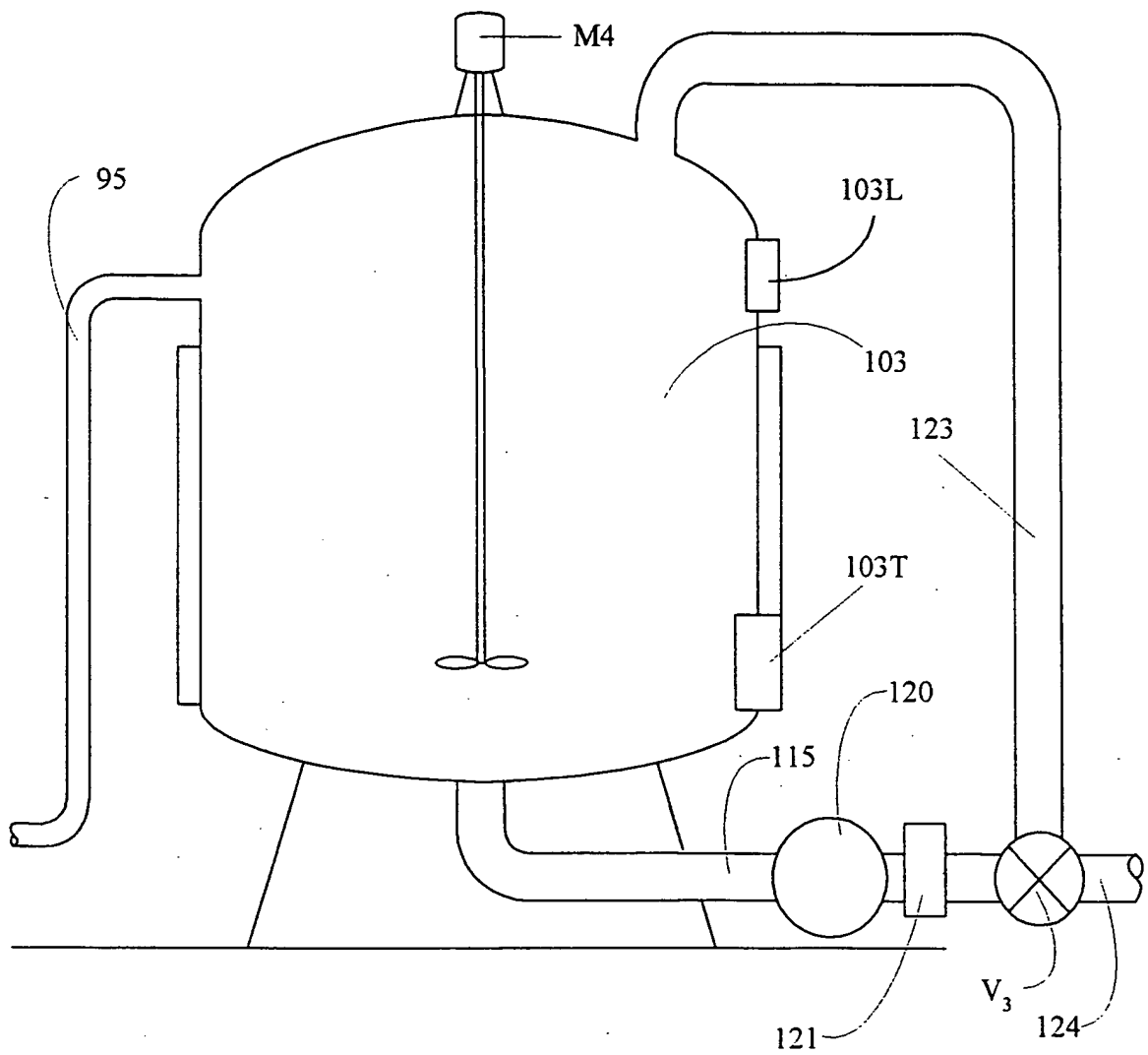


FIG. 13

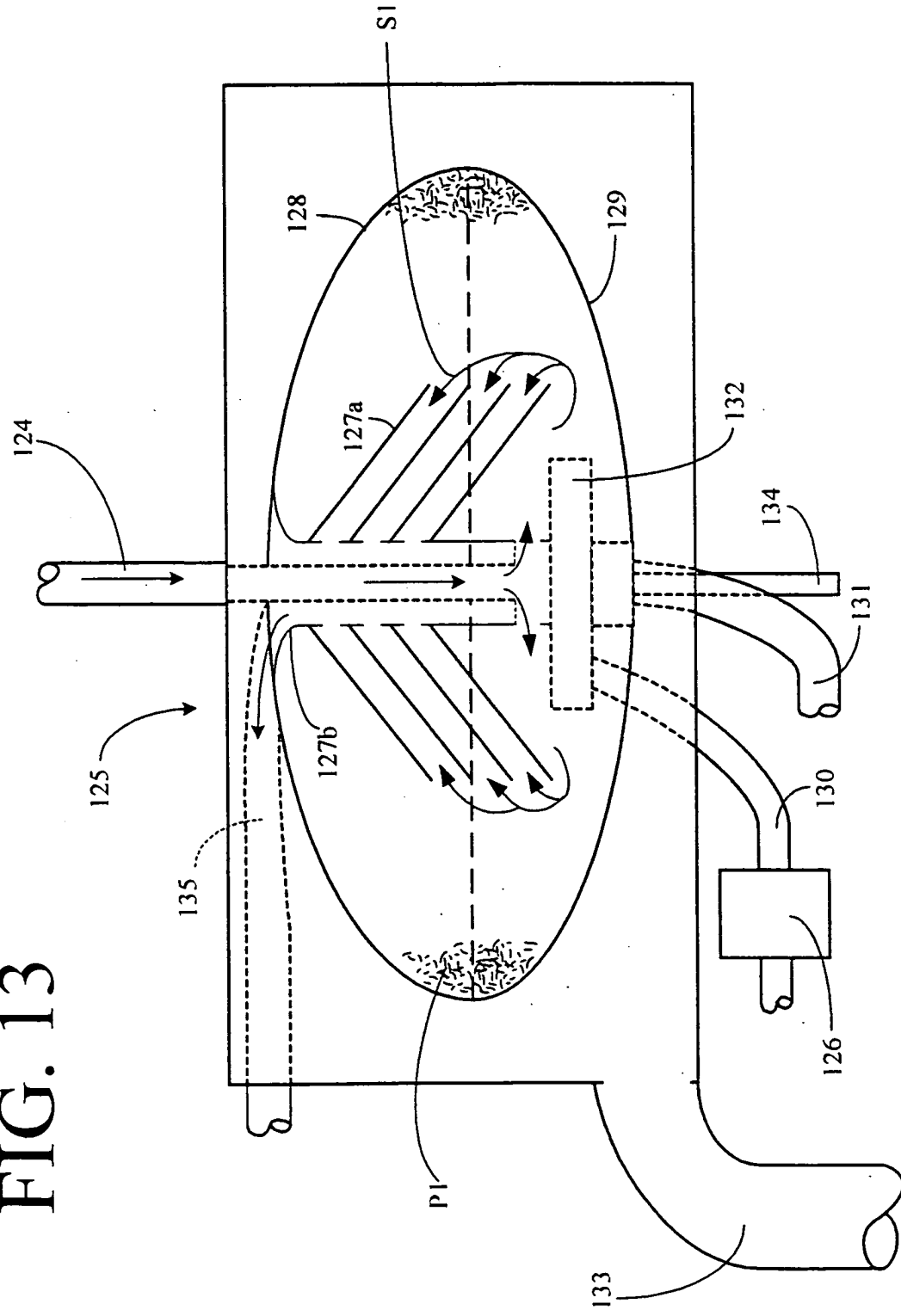
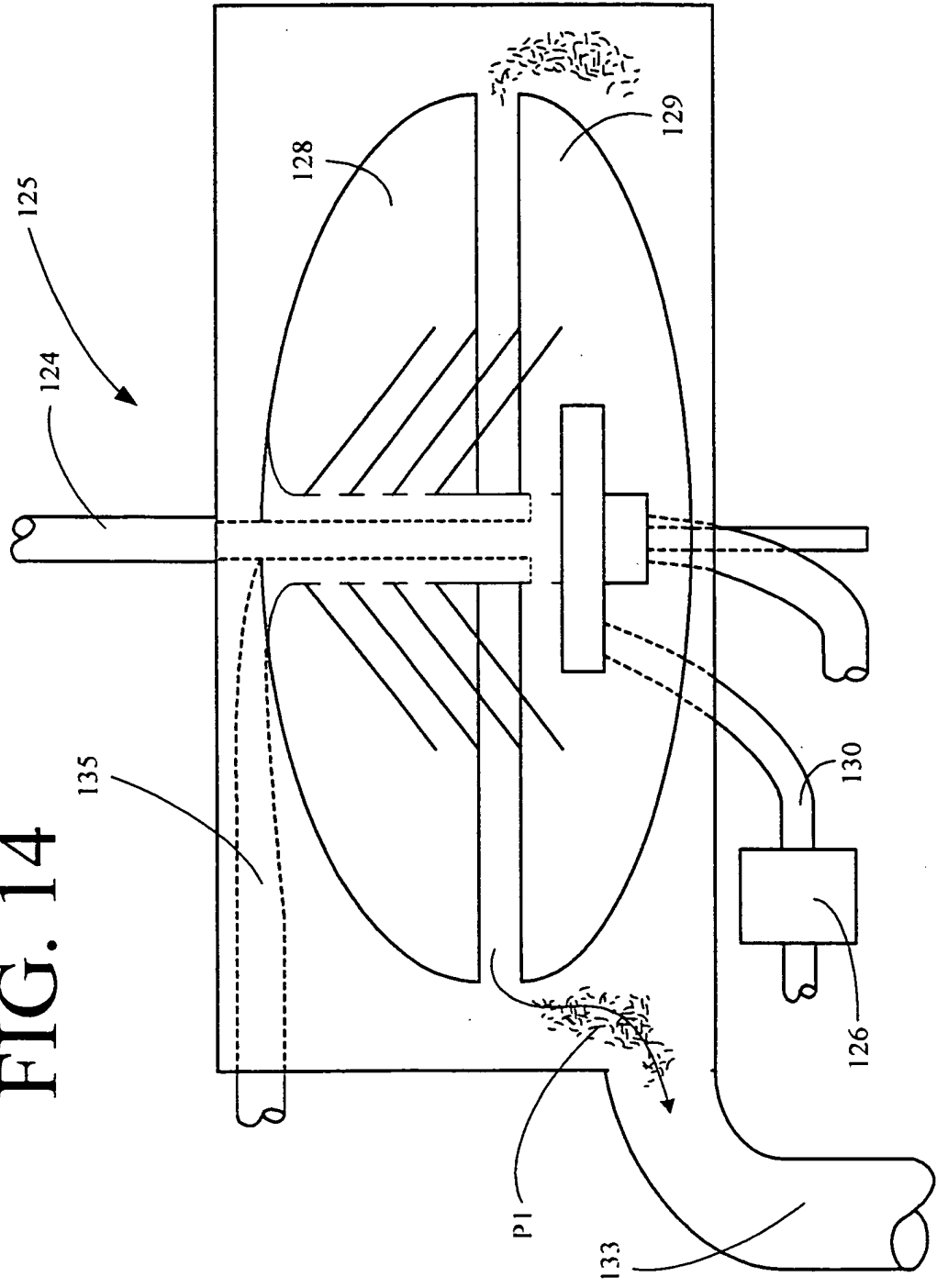


FIG. 14





**FIG. 15**

The schematic diagram illustrates a complex fluid processing system 300. The process begins with a feed stream 10 entering a series of three vertical tanks labeled 15, 20, and 25. A side stream 31 branches off from tank 15, passes through a valve 32, and enters a rectangular unit 101. Tank 25 has an outlet at the bottom leading to a larger horizontal tank 35. From tank 35, a stream 37 exits from the top, which then splits into two paths: one goes down to a rectangular unit 45, and the other continues as stream 40 to a pump 60. After pump 60, the flow passes through a valve V<sub>1</sub> and a heat exchanger 70 before entering another rectangular unit 54. A stream 71 branches off from this path and enters a small rectangular unit M3. The main flow from unit 54 passes through a valve V<sub>2</sub> and enters a large coil-shaped heat exchanger 90. A stream 75 branches off from the inlet of the coil, passes through a valve V<sub>3</sub>, and enters a rectangular unit 80. The output of the coil heat exchanger 90 flows through a valve V<sub>4</sub> and enters a rectangular unit 102. This unit has two outlets: one goes up to a rectangular unit 103 via a pump M4, and the other goes right to a rectangular unit 125 via a pump M5. Unit 103 has a return line to the coil heat exchanger 90. Unit 125 has a stream 121 exiting from its bottom, passing through a valve V<sub>3</sub> and a pump M4, which then enters a rectangular unit 104. Another stream 124 exits from the bottom of unit 125 and enters a rectangular unit 133. A stream S1 enters unit 133 from the top. The output of unit 133 goes through a pump P1 and a valve V<sub>4</sub> to enter a large rectangular unit 108. Unit 108 has a stream 139 exiting from its top, which goes through a valve V<sub>4</sub> and a pump M6 to enter a rectangular unit 140. The main output of unit 108 is stream 153, which passes through a valve and enters a rectangular unit 202. Unit 202 has a stream 175 exiting from its bottom, which enters a rectangular unit 175. The output of unit 175 goes through a pump M7 and enters a rectangular unit 148. Finally, the output of unit 148 is stream 149, which enters a large rectangular unit 300. Various other components like valves (V<sub>1</sub>, V<sub>2</sub>, V<sub>3</sub>, V<sub>4</sub>) and pumps (M3, M4, M5, M6, M7) are distributed throughout the system to control flow.

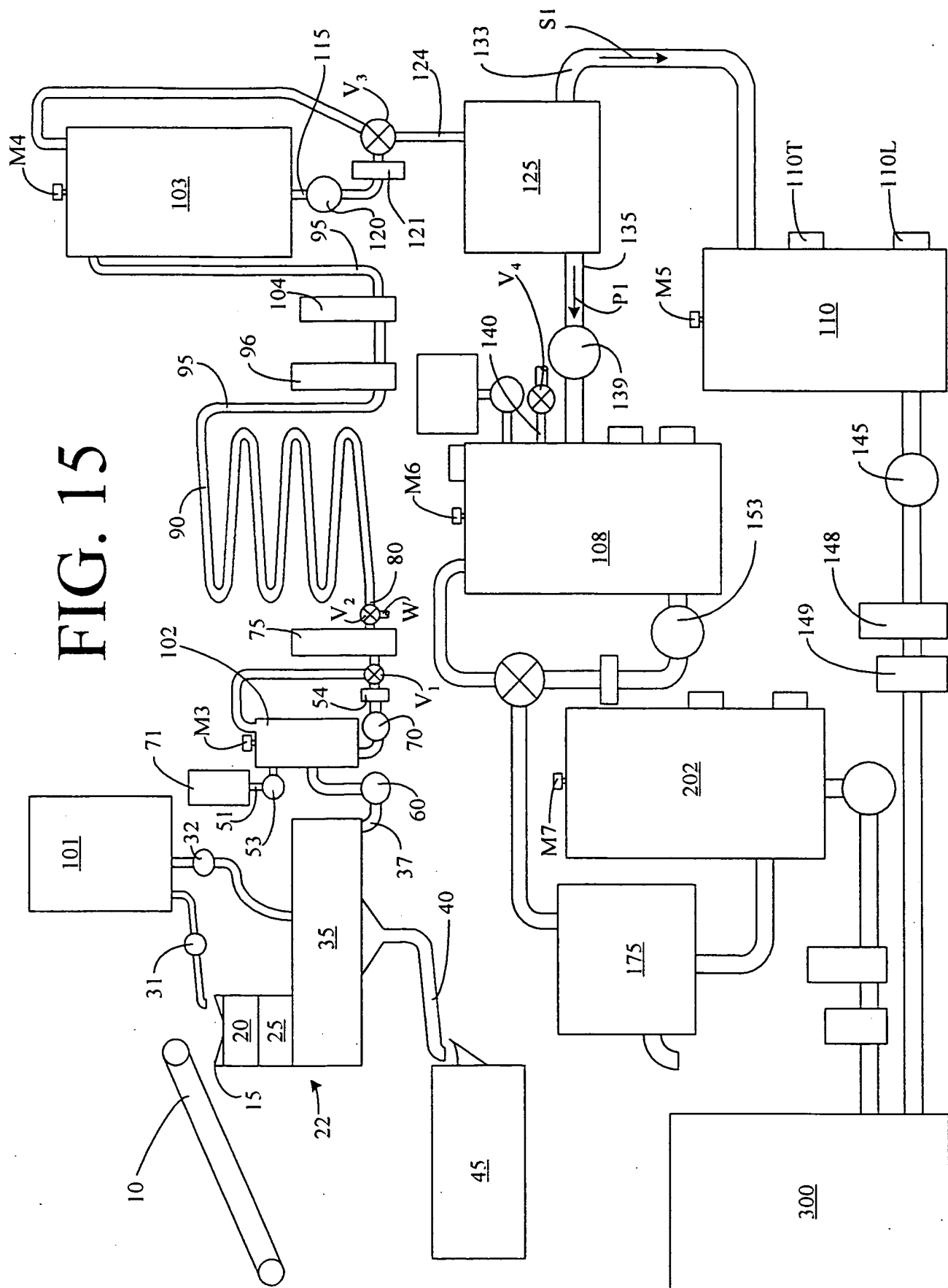
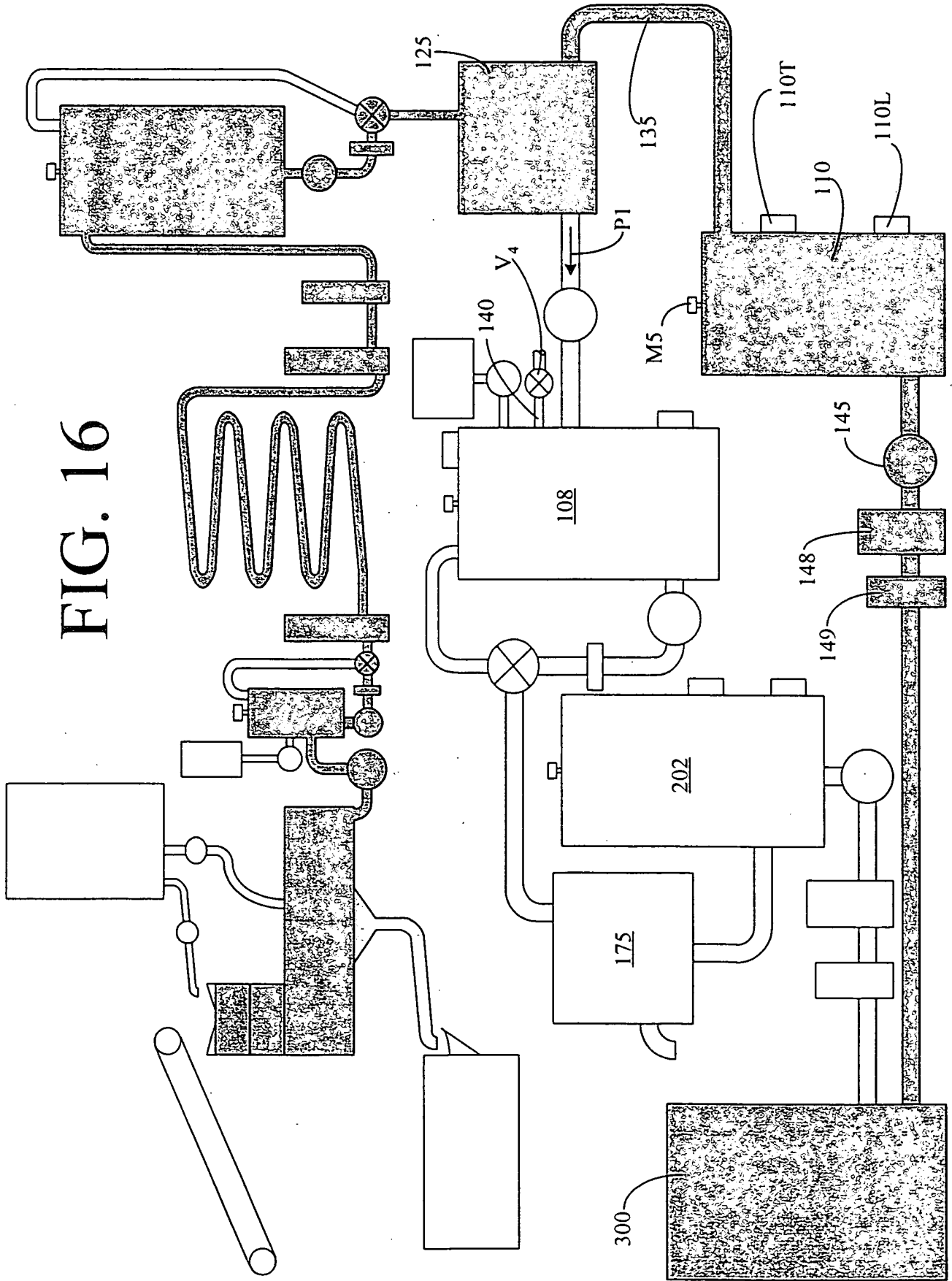
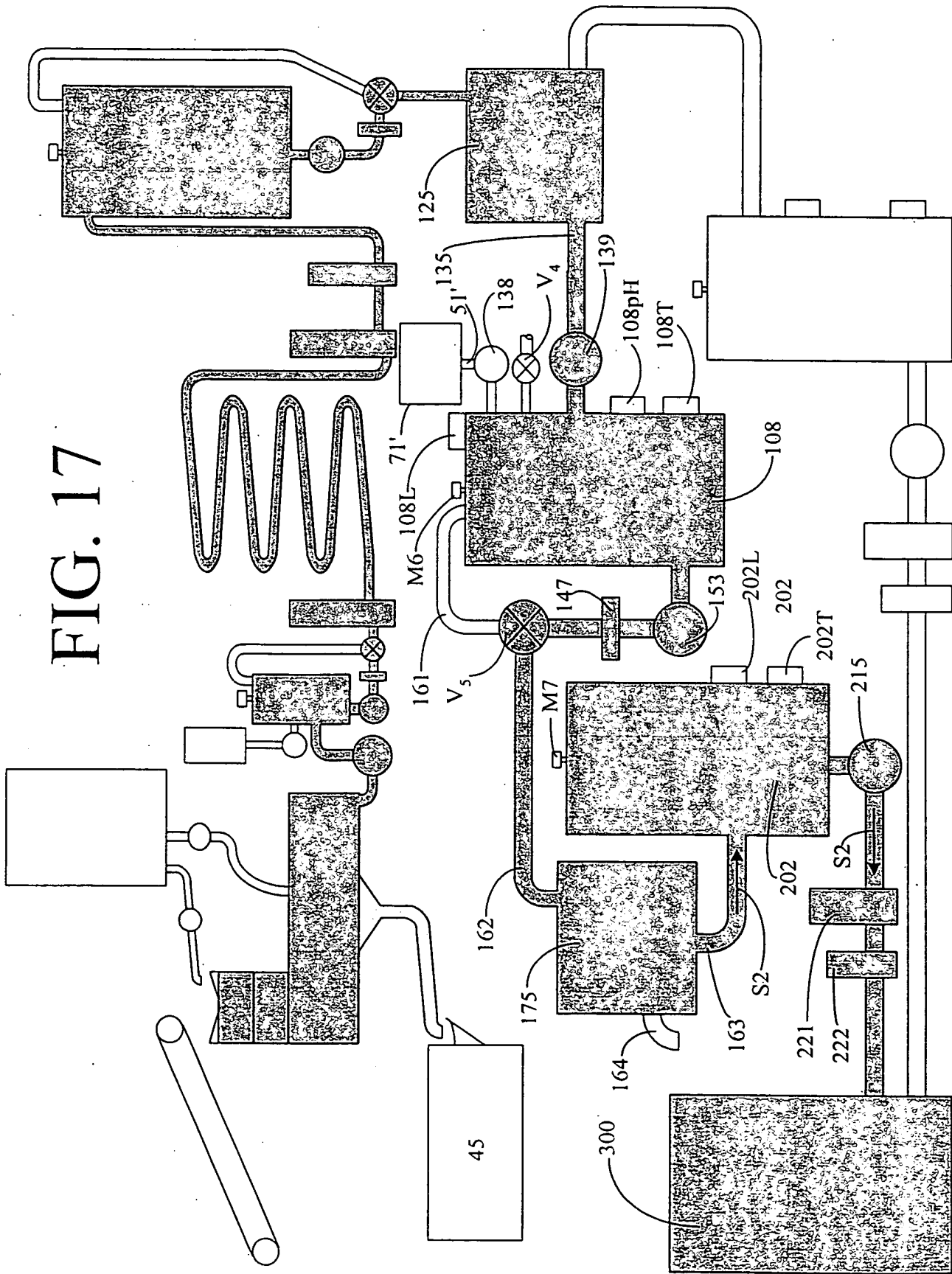


FIG. 16



[illegible]

# FIG. 18

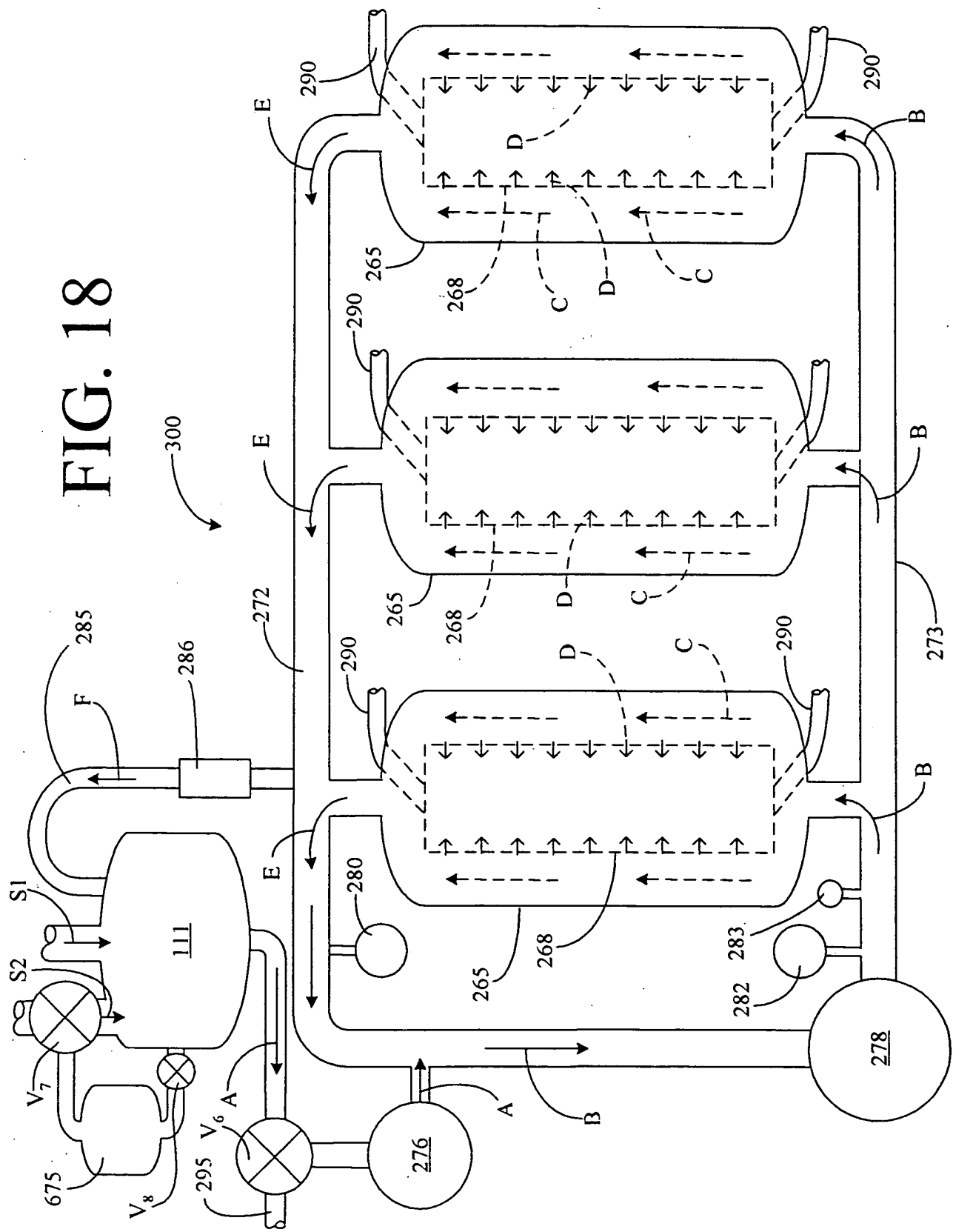
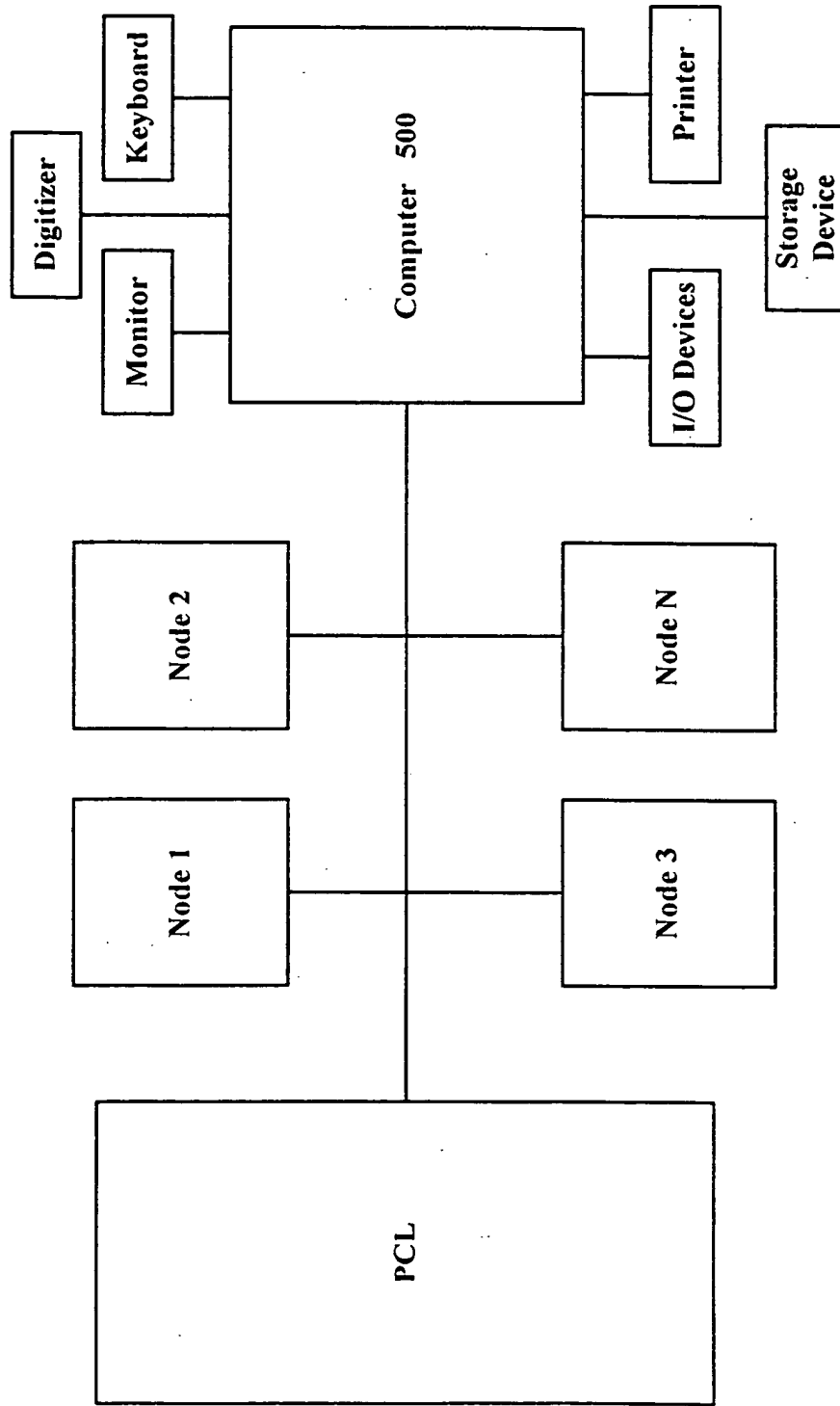


FIG. 19A



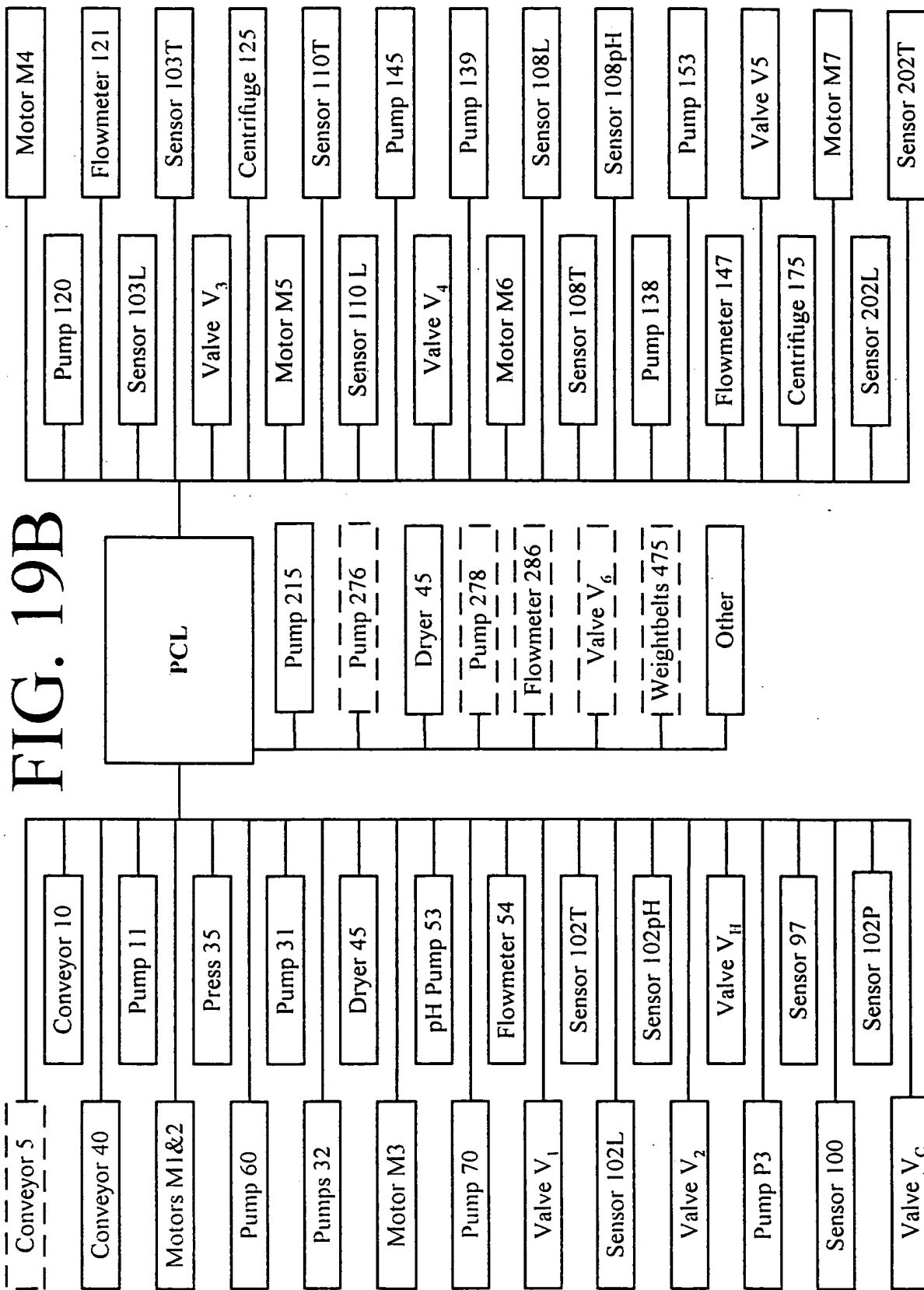


FIG. 19B

# FIG. 20

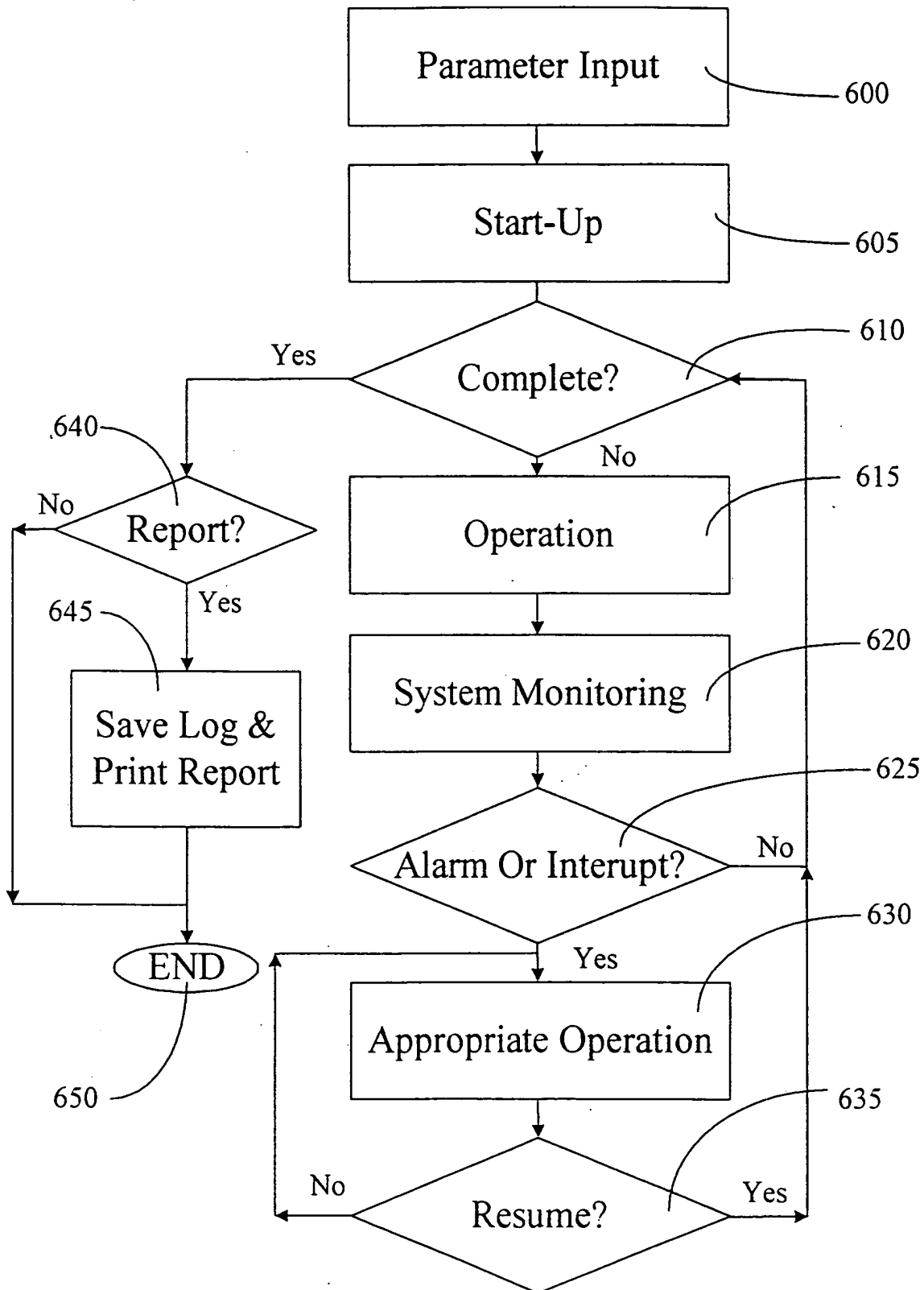


FIG. 21

| Batch Configuration  |  |
|--|--|
| Batch Number: The format for the Batch number is X#####.## |  |
| RECIPE_FILE_RP   |  |
| Recipe   | Mode   |
| <div>▼</div>   | <div><input type="radio"/> Auto</div>        |
| Modify Recipe  | <div><input type="radio"/> Semi-Auto</div>   |
| New Recipe   | <div><input type="radio"/> Maintenance</div> |
|  | <div><input type="radio"/> CIP</div>         |
|  | Start  |
| All Equipment Auto   | View Recipe                                  |
| End Maintenance Mode                                       | Print Report                                 |
| CIP Control  | End Batch                                    |
| Central Control Revision:                                  |  |



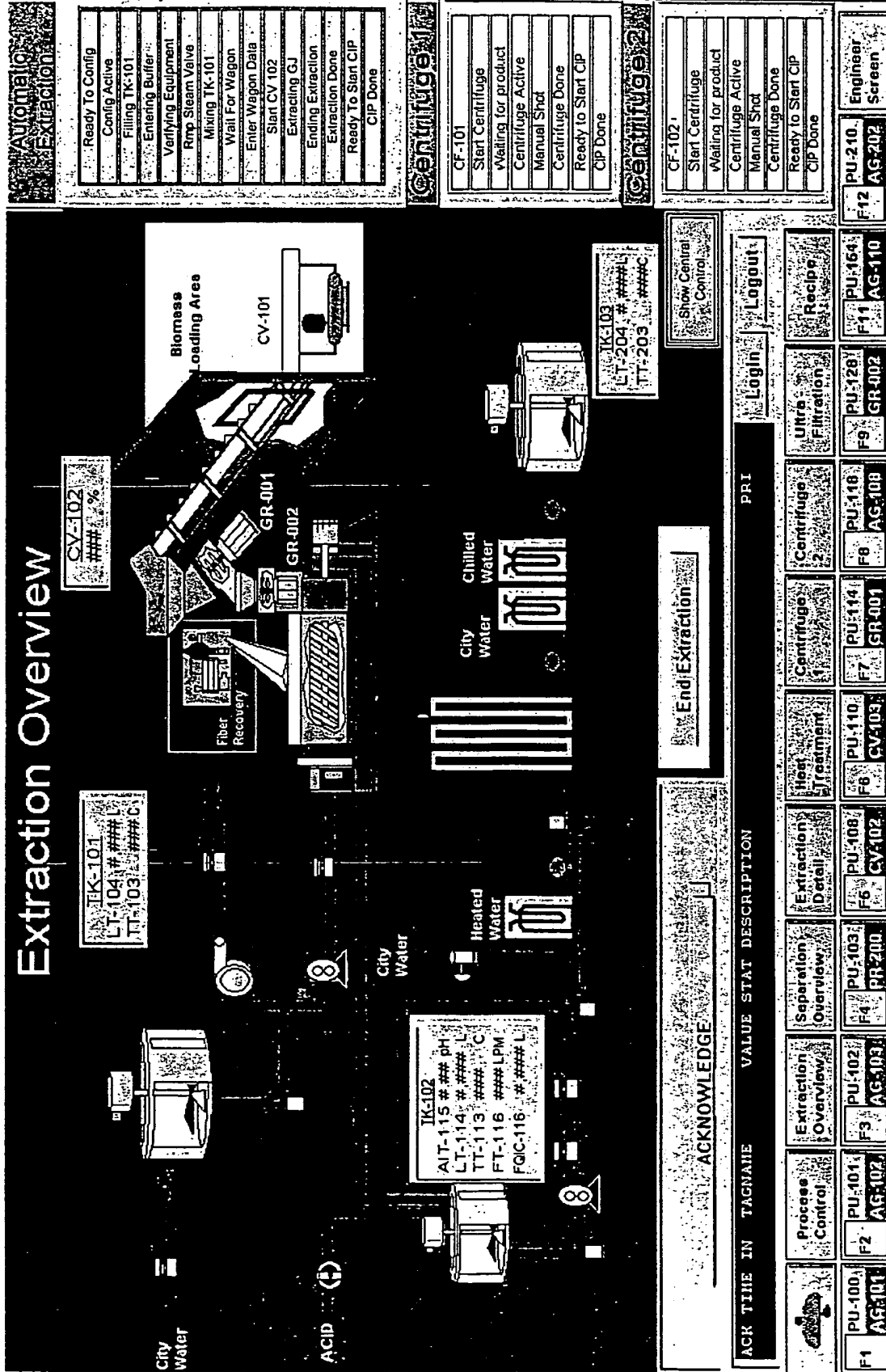
# FIG. 22

| Recipe                           |          | Centrifuge 1  | Centrifuge 2         | Ultrafiltration |
|----------------------------------|----------|---------------|----------------------|-----------------|
| Heat Treatment                   | Sol Prep | GJ Extract    | pH Adjustment        |                 |
| Save                             |          | Save As       | Delete               | Exit            |
| Water Flow To Disintegrator      |          | Text1         | 0 - 30 lpm           |                 |
| Water Flow To Press              |          | Text1         | 0 - 30 lpm           |                 |
| Agitator 101 Speed               |          | Text1         | 0 - 100 %            |                 |
| Tank 101 Mix Time                |          | Text1         | 0 - 4095 Sec         |                 |
| Concentration of buffer          |          | Text1         | 0 - 1000 grams/liter |                 |
| Grinder 1 Speed                  |          | Text1         | 0 - 100 %            |                 |
| Ideal pH in Tank 102             |          | Text1         | 0 - 1400 pH          |                 |
| Agitator 102 Speed               |          | Text1         | 0 - 100 %            |                 |
| Pump 102 Flow Rate               |          | Text1         | 0 - 303 lpm          |                 |
| Temp. Setpoint for Hold Tube     |          | Text1         | 0 - 202 C            |                 |
| Max Hold Time                    |          | Text1         | 0 - 4095 Min         |                 |
| Holding Tube Configuration       |          | Hold Config A |                      |                 |
| Agitator 103 Speed Output        |          | Text1         | 0 - 100 %            |                 |
| Agitator 110 Speed Output        |          | Text1         | 0 - 100 %            |                 |
| Green Juice Flow to Centrifuge 1 |          | Text1         | 0 - 303 lpm          |                 |
| Centrifuge 1 Shot Frequency      |          | Text1         | 0 - 1500 Sec         |                 |
| Recipe Type                      |          | S1            |                      |                 |
| Ideal pH in Tank 108             |          | Text1         | 0 - 1400 pH          |                 |
| Agitator 108 Speed Output        |          | Text1         | 0 - 100 %            |                 |
| Agitator 202 Speed Output        |          | Text1         | 0 - 100 %            |                 |
| Centrifuge 2 Shot Frequency      |          | Text1         | 0 - 1500 Sec         |                 |
| Tank 108 Initial Make-Up Water   |          | Text1         | 0 - 4000 Liters      |                 |
| Tank 108 Fill Water % of GJ      |          | Text1         | 0 - 100 %            |                 |
| Green Juice Flow to Centrifuge 2 |          | Text1         | 0 - 303 lpm          |                 |

## Recipe Overview

Accept Recipe  
Accept Recipe (Supervisor Required)

# FIG. 24



|                         |                     |
|-------------------------|---------------------|
| Automatic<br>Extraction | Ready To Config     |
|                         | Config Active       |
|                         | Filling TK-101      |
|                         | Entering Buffer     |
|                         | Verifying Equipment |
|                         | Rmp Steam Valve     |
|                         | Mixing TK-101       |
|                         | Wait For Wagon      |
|                         | Enter Wagon Data    |
|                         | Start CV 102        |
|                         | Extracting GJ       |
|                         | Ending Extraction   |
|                         | Extraction Done     |
|                         | Ready To Start CIP  |
|                         | CIP Done            |

|              |                     |
|--------------|---------------------|
| Centrifuge 1 | CF-101              |
|              | Start Centrifuge    |
|              | Waiting for product |
|              | Centrifuge Active   |
|              | Manual Stop         |
|              | Centrifuge Done     |
|              | Ready to Start CIP  |
|              | CIP Done            |

|              |                     |
|--------------|---------------------|
| Centrifuge 2 | CF-102              |
|              | Start Centrifuge    |
|              | Waiting for product |
|              | Centrifuge Active   |
|              | Manual Stop         |
|              | Centrifuge Done     |
|              | Ready to Start CIP  |
|              | CIP Done            |

|        |          |
|--------|----------|
| PU-210 | Engineer |
|        | Screen   |

ACK TIME IN TAGNAME VALUE STAT DESCRIPTION

|    |        |        |    |        |        |    |        |        |    |        |        |    |        |        |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |
|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| F1 | PU-100 | AG-101 | F2 | PU-101 | AG-102 | F3 | PU-102 | AG-103 | F4 | PU-103 | PR-200 | F5 | PU-104 | CV-102 | F6 | PU-105 | CV-103 | F7 | PU-106 | GR-001 | F8 | PU-107 | AG-108 | F9 | PU-108 | GR-002 | F10 | PU-109 | AG-110 | F11 | PU-110 | AG-111 | F12 | PU-111 | AG-112 |
|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|

FIG. 25

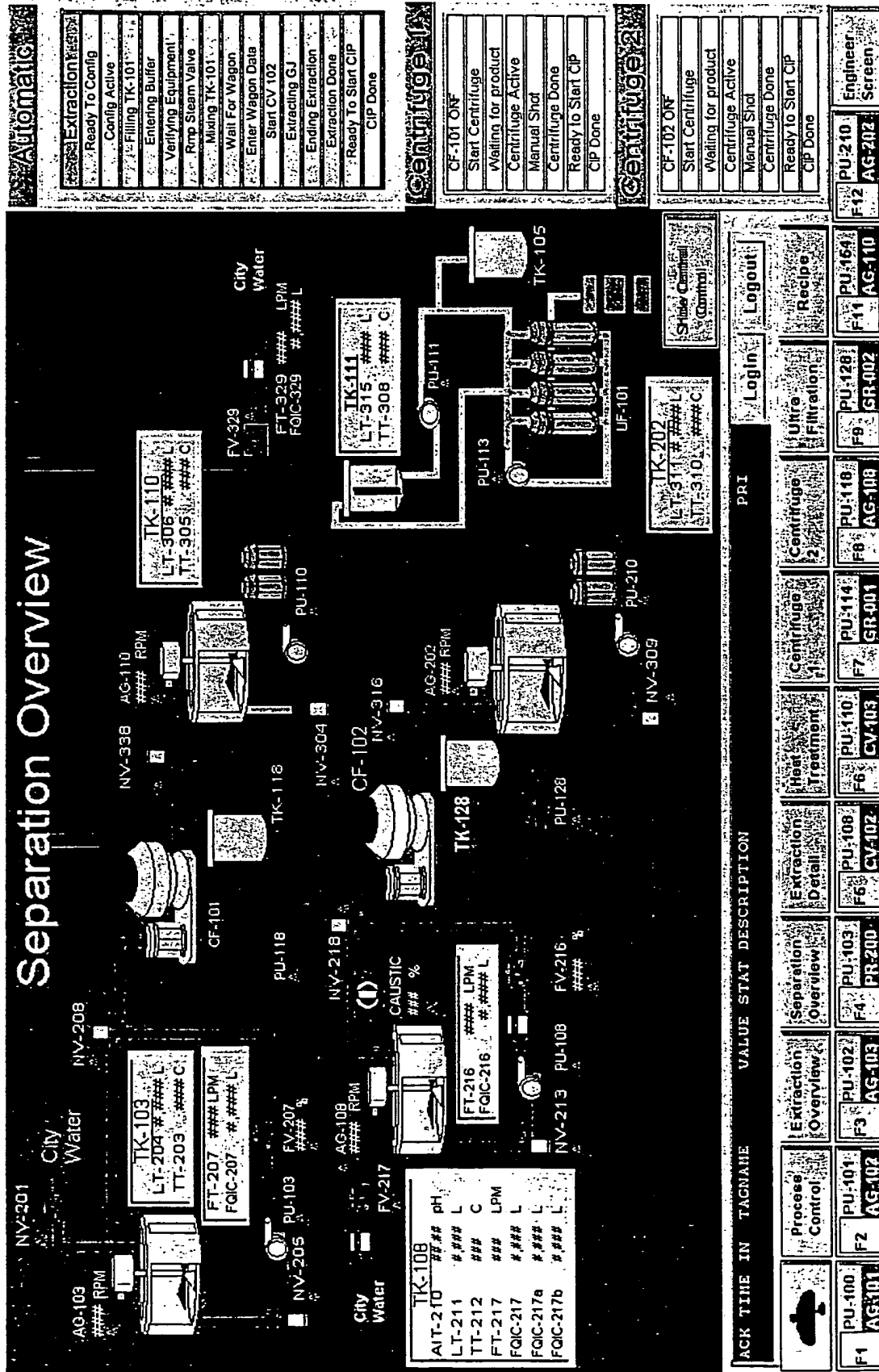
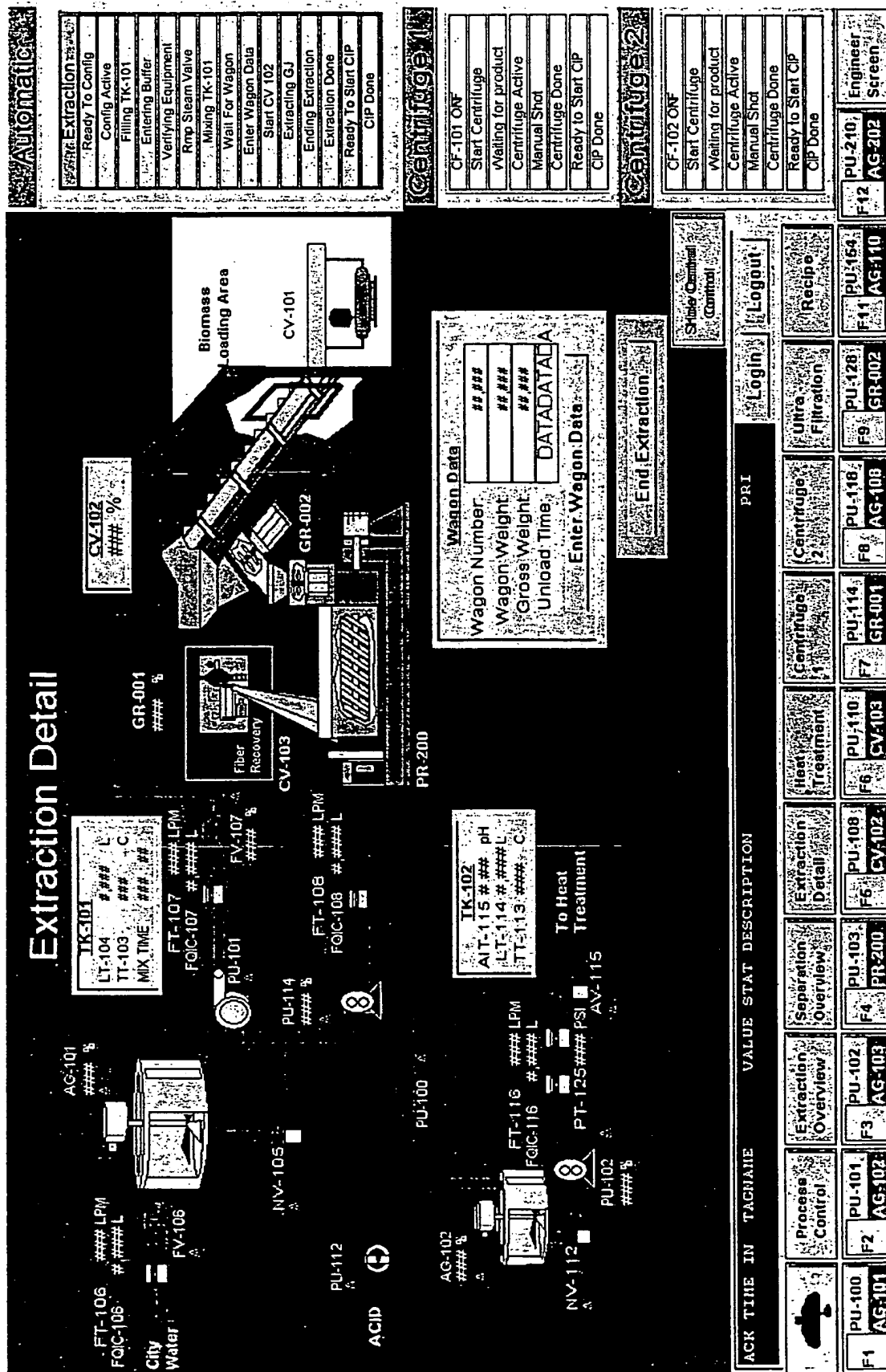


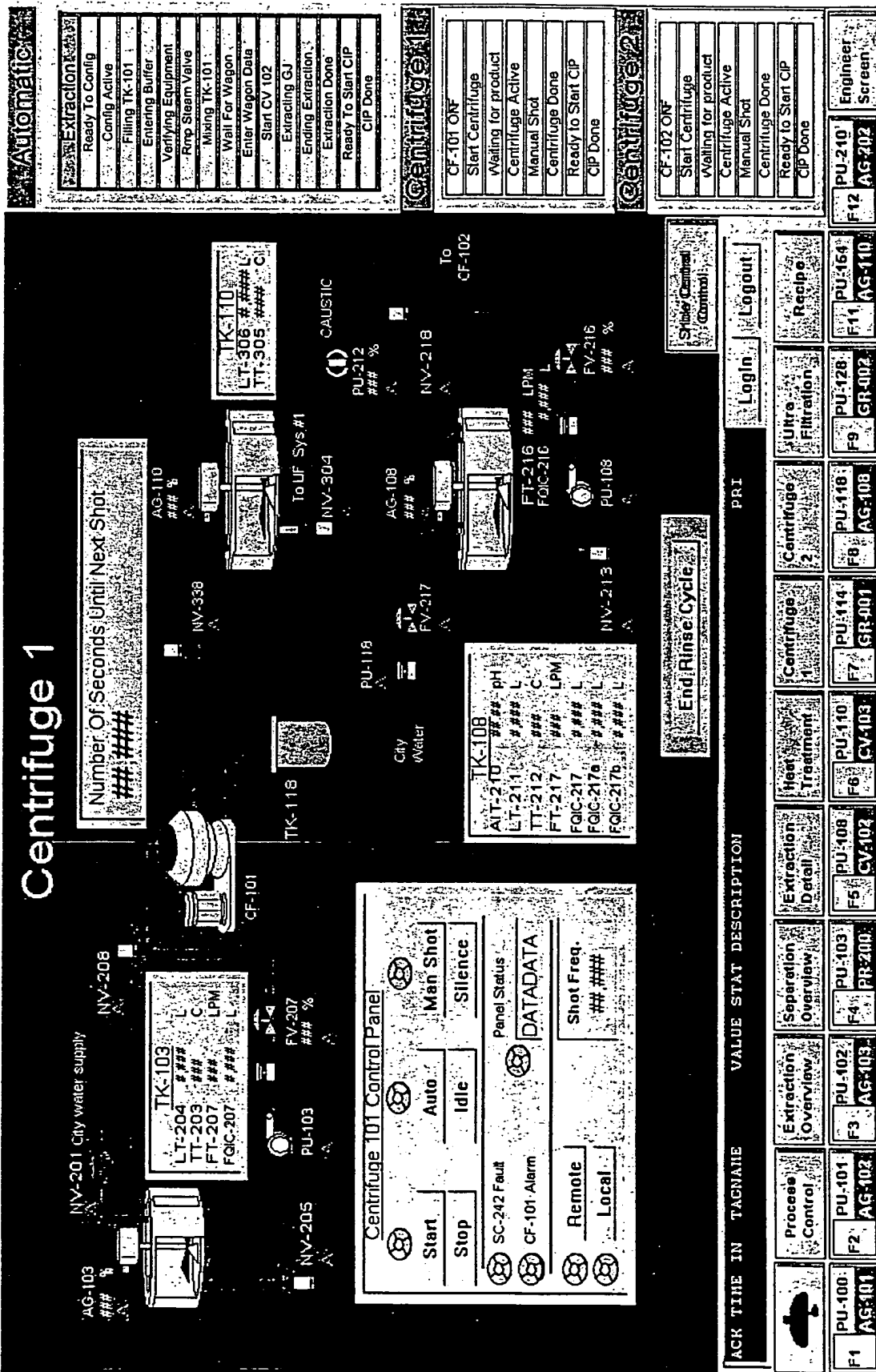
FIG. 26



[illegible]

# FIG. 28

## Centrifuge 1



Automatic

|                     |
|---------------------|
| Extraction          |
| Ready To Config     |
| Config Active       |
| Filling TK-101      |
| Entering Buffer     |
| Verifying Equipment |
| Ramp Steam Valve    |
| Mixing TK-101       |
| Wait For Wagon      |
| Enter Wagon Data    |
| Start CV 102        |
| Extracing GJ        |
| Ending Extraction   |
| Extraction Done     |
| Ready To Start CIP  |
| CIP Done            |

Centrifuge 1

|                     |
|---------------------|
| CF-101 ON           |
| Start Centrifuge    |
| Waiting for product |
| Centrifuge Active   |
| Manual Shot         |
| Centrifuge Done     |
| Ready to Start CIP  |
| CIP Done            |

Centrifuge 2

|                     |
|---------------------|
| CF-102 ON           |
| Start Centrifuge    |
| Waiting for product |
| Centrifuge Active   |
| Manual Shot         |
| Centrifuge Done     |
| Ready to Start CIP  |
| CIP Done            |

|          |
|----------|
| PU-210   |
| F12      |
| AG-202   |
| Engineer |
| Screen   |

Number Of Seconds Until Next Shot  
###,###

TK-110  
LT-306 # ### L  
TT-305 ### C

CAUSTIC  
PU-212  
### %  
NV-218

FT-216 ### LPM  
FOIC-216 ### L  
FV-216  
### %

TK-108  
AIT-210 ### pH  
LT-211 ### L  
TT-212 ### C  
FT-217 ### LPM  
FOIC-217 ### L  
FOIC-217a ### L  
FOIC-217b ### L

Centrifuge 101 Control Panel

Start

Stop

Auto

Idle

Man Shot

Silence

SC-242 Fault

CF-101 Alarm

Shot Freq. ###

Remote

Local

Panel Status

DATA DATA

Style Control Control

End Rinse Cycle

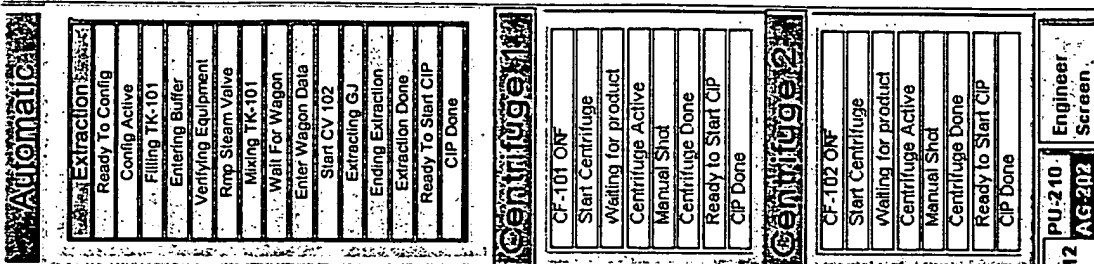
| ACK TIME IN TAGNAME | VALUE | STAT   | DESCRIPTION |
|---------------------|-------|--------|-------------|
| PU-100              | F1    | AG-101 |             |
| PU-101              | F2    | AG-102 |             |
| PU-102              | F3    | AG-103 |             |
| PU-103              | F4    | RP-200 |             |
| PU-108              | F5    | CV-102 |             |
| PU-110              | F6    | CV-103 |             |
| PU-114              | F7    | GR-001 |             |
| PU-118              | F8    | AG-108 |             |
| PU-128              | F9    | GR-002 |             |
| PU-154              | F11   | AG-110 |             |
| Recipe              |       |        |             |
| Unkre               |       |        |             |
| Filtration          |       |        |             |
| Centrifuge 1        |       |        |             |
| Centrifuge 2        |       |        |             |
| Heat Treatment      |       |        |             |
| Extraction Detail   |       |        |             |
| Separation Overview |       |        |             |
| Extraction Overview |       |        |             |
| Process Control     |       |        |             |
| PU-100              | F1    | AG-101 |             |
| PU-101              | F2    | AG-102 |             |
| PU-102              | F3    | AG-103 |             |
| PU-103              | F4    | RP-200 |             |
| PU-108              | F5    | CV-102 |             |
| PU-110              | F6    | CV-103 |             |
| PU-114              | F7    | GR-001 |             |
| PU-118              | F8    | AG-108 |             |
| PU-128              | F9    | GR-002 |             |
| PU-154              | F11   | AG-110 |             |
| Recipe              |       |        |             |
| Unkre               |       |        |             |
| Filtration          |       |        |             |
| Centrifuge 1        |       |        |             |
| Centrifuge 2        |       |        |             |
| Heat Treatment      |       |        |             |
| Extraction Detail   |       |        |             |
| Separation Overview |       |        |             |
| Extraction Overview |       |        |             |
| Process Control     |       |        |             |

Login Logout

PRI

VALUE STAT DESCRIPTION

14-7815 C-10 31 01 32





# FIG. 30

